



# Setup, Use and Care Guide

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## EM43 Color External Monitor

Dear Gates Customer,

Welcome to the Gates family! You now own one of the finest underwater housings available, and we thank you for choosing Gates. For over 33 years Gates has crafted the most **reliable, durable** and **dependable** housings to suit many needs, from recreational diving to treasure hunting, marine research and Hollywood productions to U.S. Navy programs.

You see, at Gates, your selection of our product is only the beginning. We are here to service you, the customer, for as long as you own our product. Our Customer Service is second to none. We'll make every reasonable effort to support you wherever your adventures land you, including remote corners of the globe. Anytime you need advice, parts, overhaul, or repair, Gates will take care of you promptly and to your satisfaction.

**Please read through all the documentation** contained in this package to become familiar with your Gates housing **before** diving. It contains important and valuable information to make using your new housing easy to learn and use. Soon you'll be capturing images and showing your friends and colleagues the splendor of the undersea realm.

**Complete and return the warranty card** enclosed in this package to activate your *2-year renewable warranty*. You'll receive 2 years of warranty coverage for your investment and unprecedented peace of mind, only from Gates.

Gates wishes you the greatest success in your diving adventures. May you capture the memories of a lifetime and the envy of your friends. And remember.....

**Don't take a chance...Take a *Gates!***

Sincerely,

John Ellerbrock  
President

# *Gates EM43 External Color Monitor Setup and Use*


## **Before You Begin**

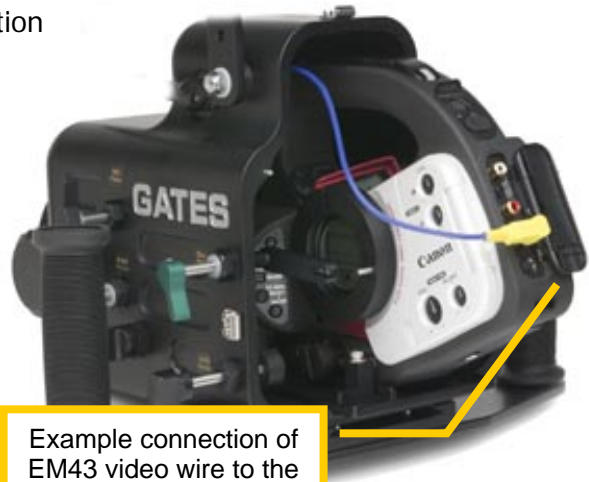
Every Gates housing is pressure tested before leaving the factory to assure a watertight seal. The EM43 is shipped with batteries installed and is ready to use. Rough or abusive handling during shipment however, could have caused unnoticed damage after leaving the factory. Please carefully inspect the contents of the package and the EM43 for any sign of damage during shipment. If damage is suspected, contact Gates directly for further action.

## **Camera Setup**

Special setup of your camera may be required to use the EM43.

- ✓ **Information display.** Some cameras can be set to display important camera information (such as battery power and record time) on the EM43. Every camera is different in this regard, so consult your camera user manual for further help. Your Gates housing Setup, Use and Care Guide may also have specific information on these settings.
- ✓ **Video aspect / format.** Your camera will also require setup in the menu system to properly display a video image on the EM43. Refer to Appendix A of this User Guide for specifics.
- ✓ **Camera video connection.** The location and type of connection required to supply the EM43 a video signal from your camera is specific to the camera. The Setup, Use and Care Guide for your housing will contain details on this connection.

- ✓  **Caution:** If you are not using the EM43 monitor do not plug the video connector into your camera.



Example connection of EM43 video wire to the Canon XL1s

## Mounting

Attachment of the EM43 to any housing is straightforward. The dovetail base will slide into the grooves on the top of the housing and then secured with thumbscrews.



## Video Connection

The EM43 will electrically connect via one of two methods: either a 2-pin EO connector (SD interface) or a 6-pin connector (HD interface). In either case the male cable connector will mate with an easily identifiable female bulkhead connector on the housing.





6 pin connector



6 pin connector mated and secured with retainer strap

Insert and fully seat the connectors to each other. The 6 pin connector can also be secured by a retainer strap.

- ✓ **Verify operation** by turning on the camera. If properly connected, the monitor will automatically turn on and display an image within 3-4 seconds.

## Batteries

The EM43 uses 8 AA cells for power. The EM43 will accept a variety of AA cell battery types (or chemistries):

- Alkaline (such as Duracell or Energizer)
- Oxy-nickel hydroxide (such as Panasonic Oxyride)
- Lithium (such as Energizer e2)
- NiMH or NiCad rechargeable

**⚡ Caution:** Do not use mixed battery types. This can cause battery leakage and damage to the EM43.

### Changing Batteries

To change the cells, release the latches on the either side of the monitor and separate the two halves where you'll find the batteries readily accessible.



**⚡ Caution:** Always install 8 new, fresh batteries when replacing spent ones. Using new and spent batteries together can lead to leakage and damage.

**⚡ Caution:** Verify the batteries are installed in the holder in the proper direction. Reversed cells may leak and cause damage.

When closing the EM43 housing, perform a routine inspection of the o-ring for any foreign material or damage. Replace if necessary and clean the o-ring groove before installing the new o-ring. Refer to the Gates "Housing Care and Maintenance Guide" for more information.

**⚡ Caution:** Do not lubricate the large orange o-ring! It is a special silicone o-ring and can be damaged by petroleum-based lubricants.

### Battery life

The EM43 will operate for ~9 hours when in HD mode and ~14 hours in SD mode of operation. Battery life will also be affected by battery type, manufacturer, age, temperature and operating mode (SD or HD).

### Low Battery Indicator

The EM43 is equipped with a red low battery LED warning light located on the right side of the display. The low-battery LED will give you ~30-60 minutes warning to change batteries. Note that different battery type, manufacturer, age, and temperature will affect the amount of time left when the LED turns on.

## Monitor Adjustment

The EM43 has three adjustments for hue, contrast and brightness. These adjustments can be found on the inside rear half of the housing (see photo).

While the monitor is pre-adjusted at the factory, Gates recommends the monitor be further adjusted to match the camera being used. This will ensure a consistent match between the monitor and the image actually being recorded.

Matching the camera and monitor should be done in a darkened area to allow good viewing of both the monitor and the camera electronic viewfinder (EVF).

With the camera on and the monitor plugged in, compare the image on the EVF to the monitor. Using a small Philips screwdriver, make minor adjustment to the hue, contrast and brightness on the EM43 until you are satisfied that the image on the monitor accurately reflects that being seen in the EVF.

NOTE: Hue adjustment is only applicable to NTSC SD input mode. It is not used in PAL SD or HD input modes.



## Customer Support

If you have any questions or require further assistance with your EM43 External Color Monitor, contact your dealer or Gates directly and we'll be happy to assist.

Email: [Customer.Srvc@GatesHousings.com](mailto:Customer.Srvc@GatesHousings.com)  
Phone: 858-272-2501  
Fax: 858-272-1208

## EM43 Setup, Use and Care Guide

### Appendix A

### Camera Display Settings

In some instances your camera will require setting up the video output settings to properly display a video image on the EM43 monitor. Use the chart below to navigate the menu system of your camera to establish these settings.

	<b>Standard Definition Input to EM43</b>	<b>High Definition Input to EM43</b>
<b>EM43 Interface Connector</b>	<b>2 pin E.O. connector</b>	<b>6 pin connector</b>
<b>SD Cameras</b>		
Sony DSC-VX1000 DSC-VX2000/2100 DCR-PD150/170 DSC-TRV900/950 DSC-PD100/PDX10 Canon GL2/XM2 XL1/1s/2	No Changes Required	Not Applicable
<b>HD Cameras</b>		
Sony HDR-FX1	MENU → IN/OUT REC → TV TYPE → 16:9	Not Applicable
Sony HDR-FX7	MENU → IN/OUT REC → TV TYPE → 16:9	MENU → IN/OUT REC → COMPONENET → 1080i/480i
Sony HDR-HC1	MENU → STD SET → TV TYPE → 16:9	Not Applicable
Sony HVR-A1U	MENU → STD SET → DOWNCONVERT → SQUEEZE	Not Applicable
Sony HVR-Z1U	MENU → IN/OUT REC → DOWNCONVERT → SQUEEZE	Not Applicable
Sony HVR-V1U	MENU → IN/OUT REC → DOWNCONVERT → SQUEEZE	MENU → IN/OUT REC → COMPONENET → 1080i/480i
Canon XL H1 XH A1 / XH G1	No Changes Required	MENU → SIGNAL SETUP → COMP OUT → 1080i/480i
Panasonic HVX200	No Changes Required	MENU → AV IN/OUT SETUP → COMPNT OUT SEL → 1080i or 720P